SIEMENS

MAMMOMAT 300

RX

Installation Instructions, OPCOMP

RX B7-120.033.02.01.02 English

Replaces: 04.94

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Installation of OPCOMP

Exchanging the display film

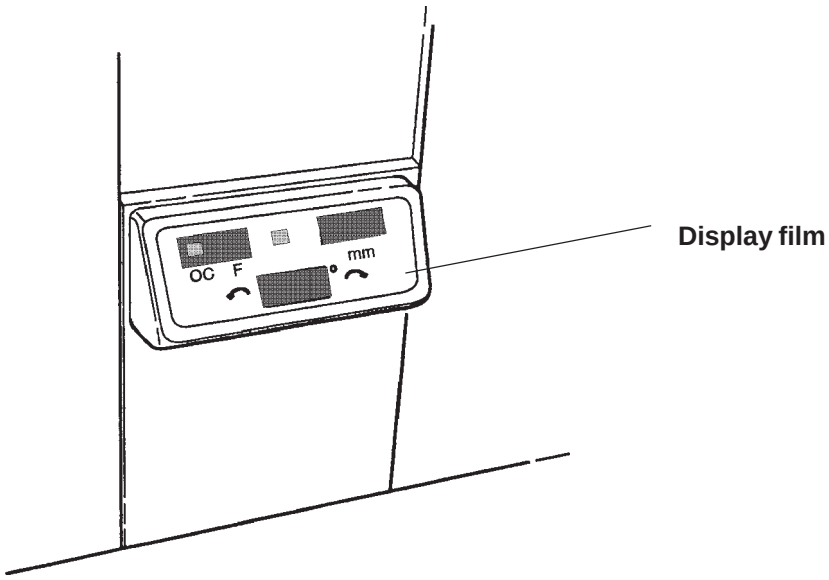


Fig. 1.1

- Remove the display film from the stand display.
- Affix the new display film on the stand display.

Installing OPCOMP

Operation of the service PC is described in *"Installation and Start-Up Instructions"* RX B7-120.033.01...

Connecting the service PC

- Connect service PC to p.c. board D702 in the generator using connection cable part no. 96 60 978 RE999. Switch S3 on board D702 must be set to upper position (ON).
- Insert service disk.
- Start service program.
- Generator "ON"

Display	Entry required		Remarks
c:\>	{A:} {B:}	<Enter>	According to service PC disk drive names
a:\>	SERVICE	<Enter>	
Your name please	*USER'S NAME*	<Enter>	
Password please	*xxxxx*	<Enter>	
Main menu	<↓> <↑>	<Enter>	Select "M2000 Config" subroutine
Configuration	<↓> <↑>	<Enter>	Select "Best compression" subroutine

Calibrating for OPCOMP

When calibrating for OPCOMP, following will be needed:

- a 3 – 5 cm thick, non-compressible object,
- the 18 x 24 cm and the 24 x 30 cm compression plates for normal screening,
- the 18 x 24 cm and the 24 x 30 cm object tables.

- Check that the x-ray tube assembly is in 0°-position.
- Choose *"Best compression"* from the Installation table in the Service program, see fig. 1.2
- Check that the values in the Best compression table are as follows:

best comp mod	00
best comp timeout	1E
force per thickness	0055
divider	05
best comp force lim	1C
loop count compare	01
sample time diff	0A

Save all changes with <F2>.

- Attach the 18 x 24 cm compression plate and the 18 x 24 cm object table.
- Place the non-compressible object on the object table.

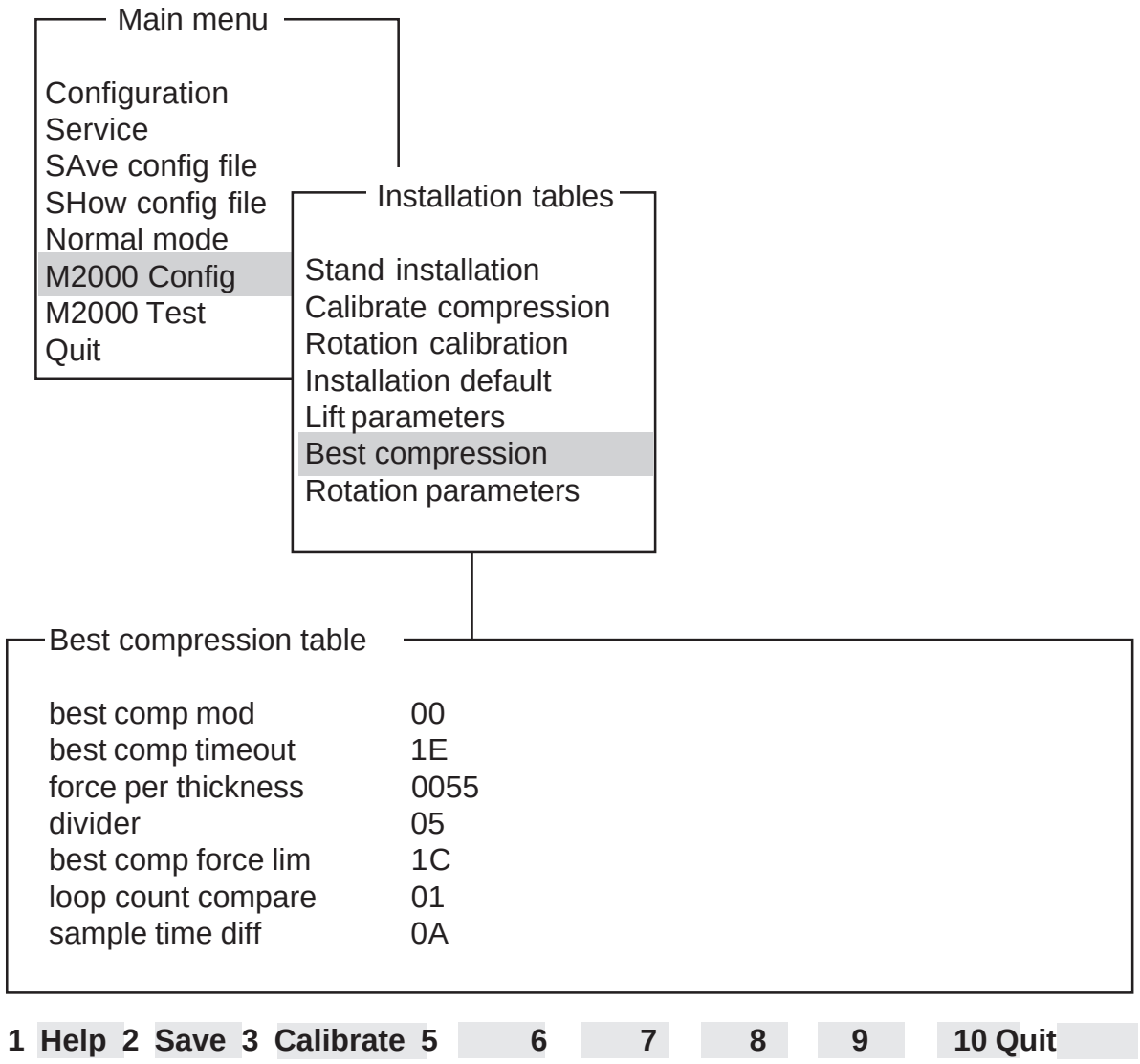

Main menu
Configuration
Service
SAve config file
SHow config file
Normal mode
M2000 Config
M2000 Test
Quit
Installation tables
Stand installation
Calibrate compression
Rotation calibration
Installation default
Lift parameters
Best compression
Rotation parameters
Best compression table
best comp mod 00
best comp timeout 1E
force per thickness 0055
divider 05
best comp force lim 1C
loop count compare 01
sample time diff 0A
1 Help 2 Save 3 Calibrate 5 6 7 8 9 10 Quit

Fig. 1.2

- Move the compression plate downwards manually by turning the compression knobs. Stop the manual compression when the stand display shows a force of 2 kg. Record the thickness in Table 1.

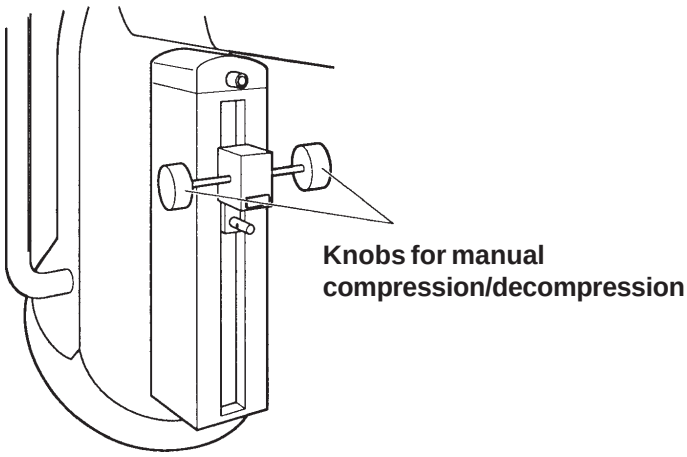


Fig. 1.3

- Compress the object with very small, repeated compressions of the foot switch. Record the force and the thickness values between each small compression in Table 1. Try to measure the thickness for each kg between 2 kg and 20 kg. Make approximately 20 small compressions. If the measured values are identical in two following compressions, only one of these two measurements shall be recorded in Table 1.

- Repeat the procedure with the 24 x 30 cm object table and the 24 x 30 cm compression plate.

Example:

Compression of a 45 mm non-compressible object

Compression plate: **18x24 cm** **24x30 cm**

Force	Thickness	Force	Thickness
3	45	2	45
5	43	5	42
5	42	6	41
6	42	7	41
6	41	7	40
7	41	8	39
8	40	9	39
8	39	10	38
9	38	11	38
10	37	12	37
11	36	12	37
11	35	13	36
12	34	14	36
13	33	15	35
14	33	16	34
15	32	16	34
16	31	17	33
17	30	18	33
17	29	18	32
18	29	19	32
18	28	20	31
19	28		
19	27		
20	27		

Your values:

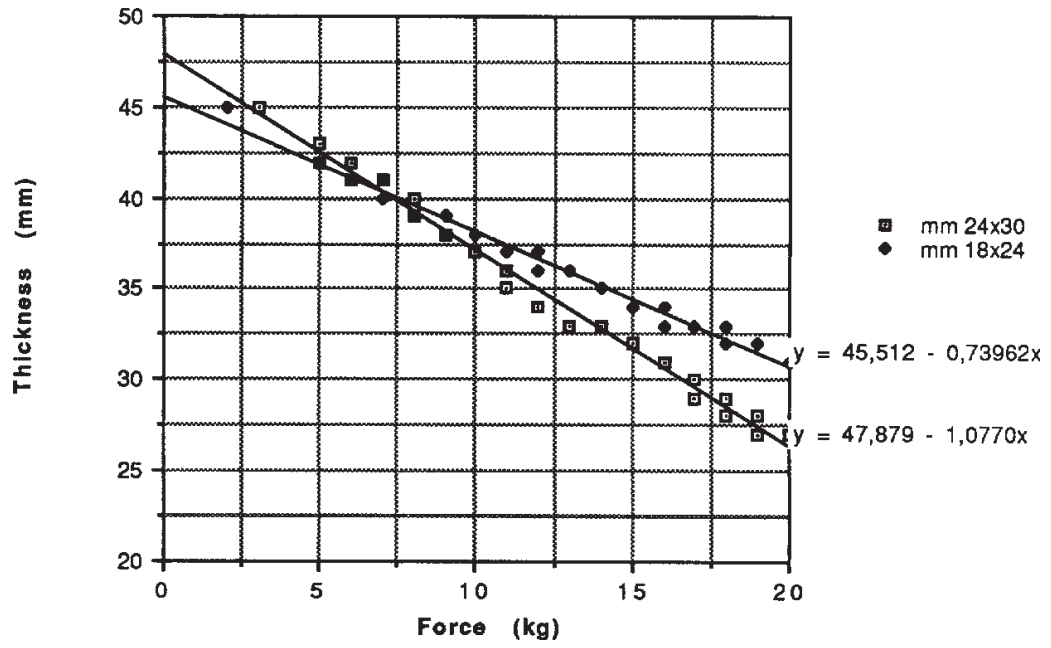
Table 1

Compression plate: **18x24 cm** **24x30 cm**

Force	Thickness	Force	Thickness

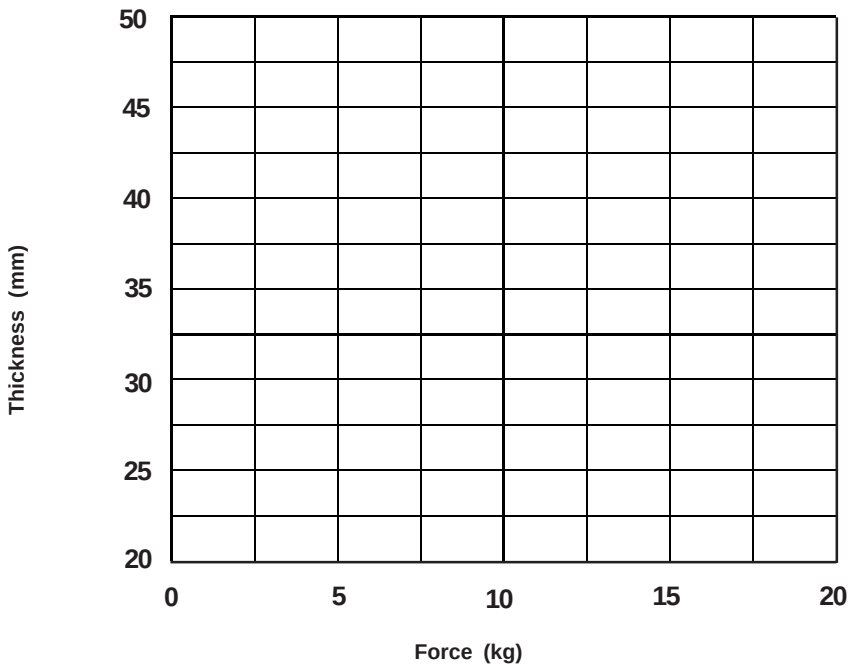
- Plot the values for each compression plate in Diagram 1.

Example:



Your values

Diagram 1



- Calculate the linear coefficient, B, for each compression plate. Use the plotted values with one decimal digit in the diagram.

$$\frac{\text{Maximum thickness (at 0 kg)} - \text{Minimum thickness (at 20 kg)}}{\text{Maximum force (20)}} + 0.2 = B$$

Example:

18 x 24 cm	**24 x 30 cm**
$B = \frac{45.5 - 31}{20} + 0.2 = 0.925$	$B = \frac{47.9 - 27}{20} + 0.2 = 1.245$

Your values:

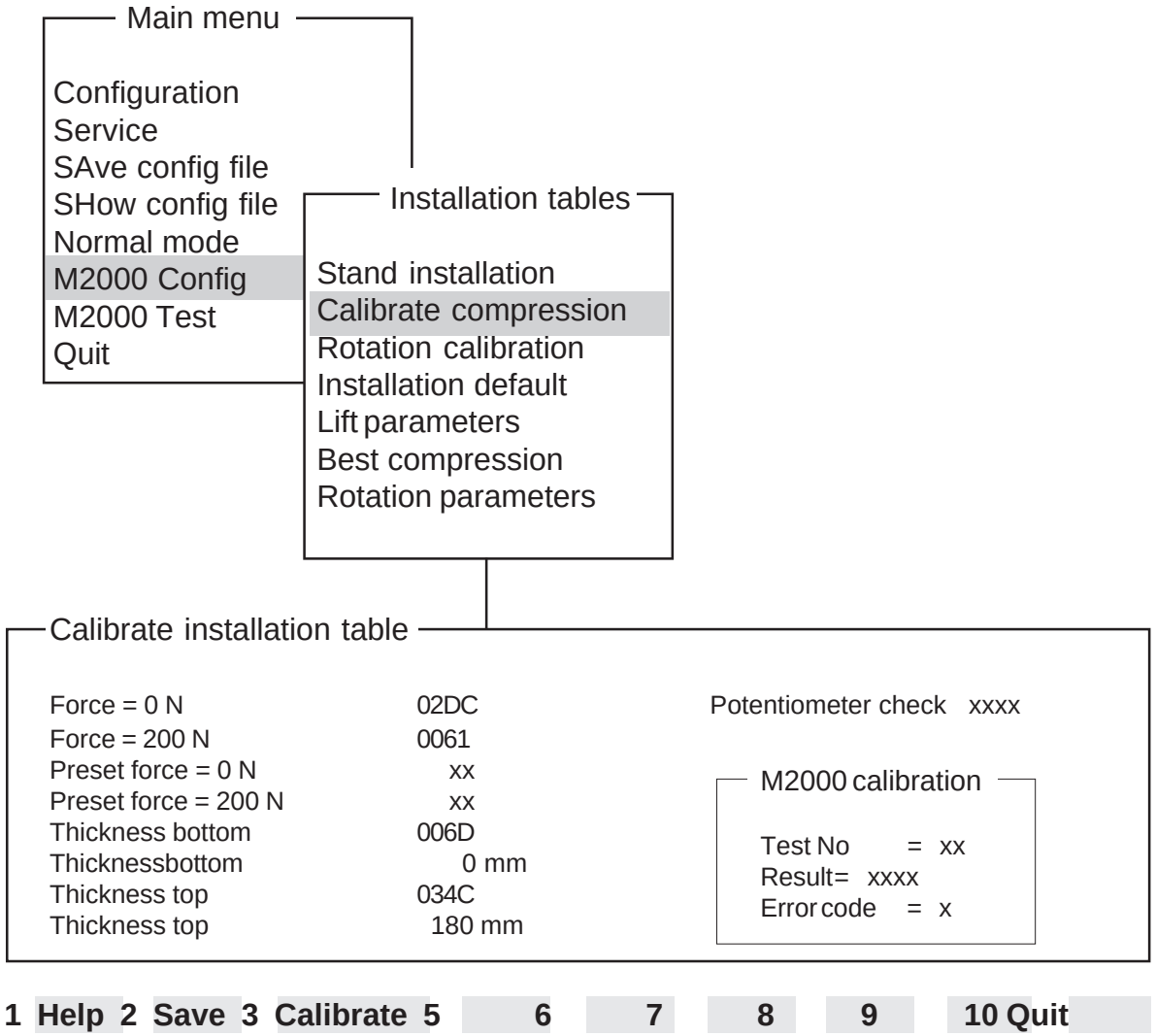
18 x 24 cm	**24 x 30 cm**
$B = \frac{\quad - \quad}{20} + 0.2 =$	$B = \frac{\quad - \quad}{20} + 0.2 =$

Calculate the OPCOMP factor

- Choose *"Calibrate compression"* from the Installation tables menu. The hex values for force 0 N and 200 N, thickness bottom and thickness top can be found in the *"Calibrate installation table"*. These values are used for calculating the factor (f), specific for each equipment. Use the *"Conversion table"* when converting your values.

$$\frac{\frac{(200\ \text{N} - 0\ \text{N})^{hex}}{20}}{\frac{(\text{thickness top} - \text{thickness bottom})^{hex}}{\text{thickness top (mm)}}} = f$$

Example:



$$f = \frac{\frac{(2DC - 61)^{hex}}{20}}{\frac{(34C - 6D)^{hex}}{180}} = \frac{\frac{732 - 97}{20}}{\frac{844 - 109}{180}} = 7.78$$

Your values:

$$f = \frac{\frac{(\quad - \quad)^{hex}}{20}}{(\quad - \quad)^{hex}} =$$

- Calculate the force per thickness value for each compression plate.

  1/B x f x 10 = x=> $(x)^{hex}$

Example:

18 x 24 cm

1/0.925 x 7.78 x 10 = 84.1 => $(54)^{hex}$

24 x 30 cm

1/1.245 x 7.78 x 10 = 62.4 => $(3E)^{hex}$

Your values:

18 x 24 cm

1/ x x 10 = => ($)^{hex}$

24 x 30 cm

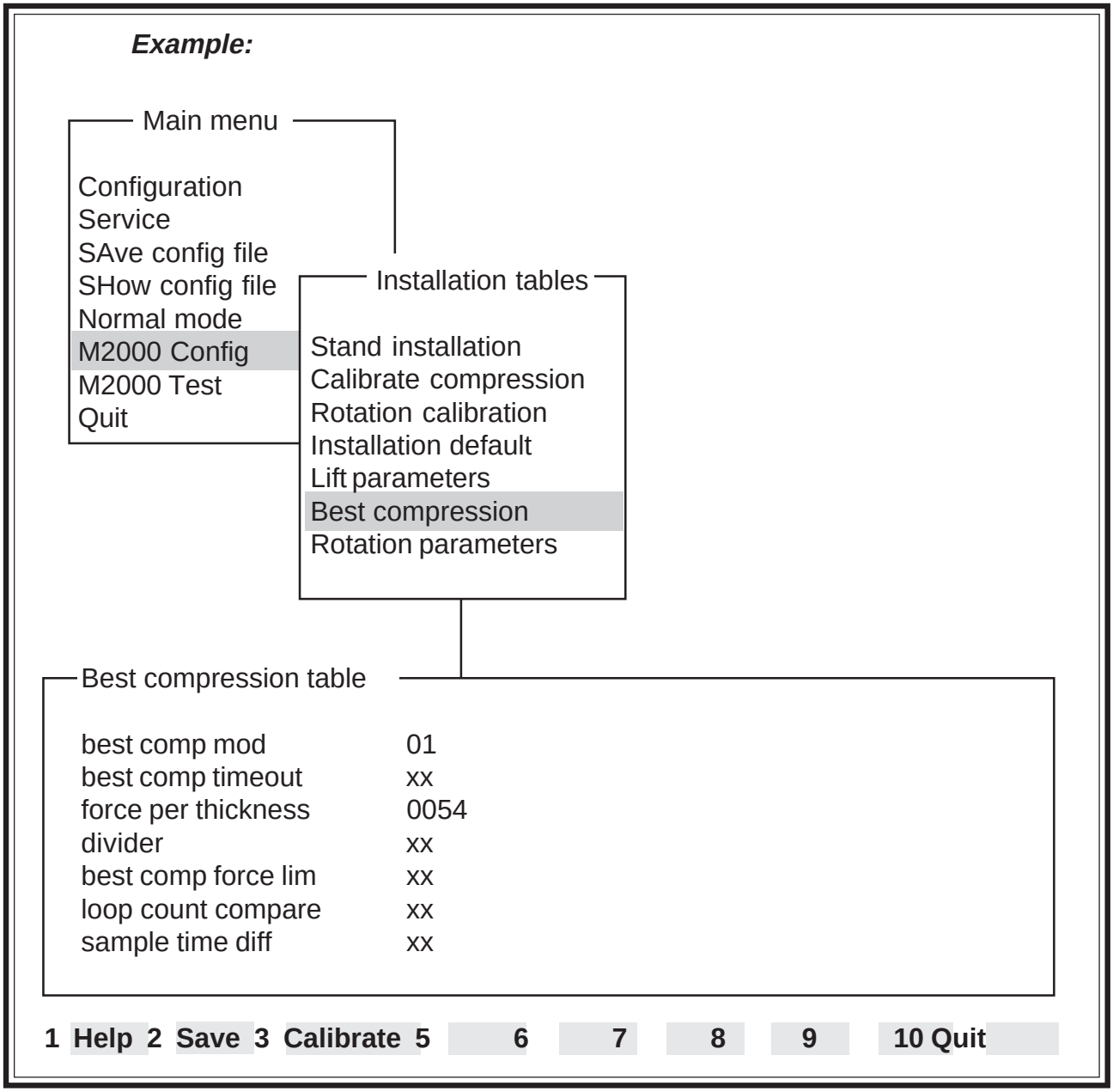
1/ x x 10 = => ($)^{hex}$

Record the values in the service program

- Choose "Best compression" in the Installation table.
- Change the best comp mode in the *"Best compression table"* to 01.
- Choose the 18x24 cm force per thickness value and record it in *"Best compression table".* Use four (4) numbers. Save with F2.

Display	Entry required		Remarks
Main menu	< ↓ > < ↑ >	<Enter>	Select "M2000 Config" subroutine
Configuration	< ↓ > < ↑ >	<Enter>	Select "Best compression" subroutine
Best comp mod	01	<F2>	Save data with <F2>.
Force per thickness	xxxx	<F2>	Save data with <F2>.

Example:



Checking OPCOMP

- Make a compression with the foot switch on the non-compressible object. Check that the OC indicator on the stand display is lit.

Conversion table

Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex
1	1	57	39	113	71	169	A9	225	E1	281	119
2	2	58	3A	114	72	170	AA	226	E2	282	11A
3	3	59	3B	115	73	171	AB	227	E3	283	11B
4	4	60	3C	116	74	172	AC	228	E4	284	11C
5	5	61	3D	117	75	173	AD	229	E5	285	11D
6	6	62	3E	118	76	174	AE	230	E6	286	11E
7	7	63	3F	119	77	175	AF	231	E7	287	11F
8	8	64	40	120	78	176	B0	232	E8	288	120
9	9	65	41	121	79	177	B1	233	E9	289	121
10	A	66	42	122	7A	178	B2	234	EA	290	122
11	B	67	43	123	7B	179	B3	235	EB	291	123
12	C	68	44	124	7C	180	B4	236	EC	292	124
13	D	69	45	125	7D	181	B5	237	ED	293	125
14	E	70	46	126	7E	182	B6	238	EE	294	126
15	F	71	47	127	7F	183	B7	239	EF	295	127
16	10	72	48	128	80	184	B8	240	F0	296	128
17	11	73	49	129	81	185	B9	241	F1	297	129
18	12	74	4A	130	82	186	BA	242	F2	298	12A
19	13	75	4B	131	83	187	BB	243	F3	299	12B
20	14	76	4C	132	84	188	BC	244	F4	300	12C
21	15	77	4D	133	85	189	BD	245	F5	301	12D
22	16	78	4E	134	86	190	BE	246	F6	302	12E
23	17	79	4F	135	87	191	BF	247	F7	303	12F
24	18	80	50	136	88	192	C0	248	F8	304	130
25	19	81	51	137	89	193	C1	249	F9	305	131
26	1A	82	52	138	8A	194	C2	250	FA	306	132
27	1B	83	53	139	8B	195	C3	251	FB	307	133
28	1C	84	54	140	8C	196	C4	252	FC	308	134
29	1D	85	55	141	8D	197	C5	253	FD	309	135
30	1E	86	56	142	8E	198	C6	254	FE	310	136
31	1F	87	57	143	8F	199	C7	255	FF	311	137
32	20	88	58	144	90	200	C8	256	100	312	138
33	21	89	59	145	91	201	C9	257	101	313	139
34	22	90	5A	146	92	202	CA	258	102	314	13A
35	23	91	5B	147	93	203	CB	259	103	315	13B
36	24	92	5C	148	94	204	CC	260	104	316	13C
37	25	93	5D	149	95	205	CD	261	105	317	13D
38	26	94	5E	150	96	206	CE	262	106	318	13E
39	27	95	5F	151	97	207	CF	263	107	319	13F
40	28	96	60	152	98	208	D0	264	108	320	140
41	29	97	61	153	99	209	D1	265	109	321	141
42	2A	98	62	154	9A	210	D2	266	10A	322	142
43	2B	99	63	155	9B	211	D3	267	10B	323	143
44	2C	100	64	156	9C	212	D4	268	10C	324	144
45	2D	101	65	157	9D	213	D5	269	10D	325	145
46	2E	102	66	158	9E	214	D6	270	10E	326	146
47	2F	103	67	159	9F	215	D7	271	10F	327	147
48	30	104	68	160	A0	216	D8	272	110	328	148
49	31	105	69	161	A1	217	D9	273	111	329	149
50	32	106	6A	162	A2	218	DA	274	112	330	14A
51	33	107	6B	163	A3	219	DB	275	113	331	14B
52	34	108	6C	164	A4	220	DC	276	114	332	14C
53	35	109	6D	165	A5	221	DD	277	115	333	14D
54	36	110	6E	166	A6	222	DE	278	116	334	14E
55	37	111	6F	167	A7	223	DF	279	117	335	14F
56	38	112	70	168	A8	224	E0	280	118	336	150

Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex
337	151	393	189	449	1C1	505	1F9	561	231	617	269
338	152	394	18A	450	1C2	506	1FA	562	232	618	26A
339	153	395	18B	451	1C3	507	1FB	563	233	619	26B
340	154	396	18C	452	1C4	508	1FC	564	234	620	26C
341	155	397	18D	453	1C5	509	1FD	565	235	621	26D
342	156	398	18E	454	1C6	510	1FE	566	236	622	26E
343	157	399	18F	455	1C7	511	1FF	567	237	623	26F
344	158	400	190	456	1C8	512	200	568	238	624	270
345	159	401	191	457	1C9	513	201	569	239	625	271
346	15A	402	192	458	1CA	514	202	570	23A	626	272
347	15B	403	193	459	1CB	515	203	571	23B	627	273
348	15C	404	194	460	1CC	516	204	572	23C	628	274
349	15D	405	195	461	1CD	517	205	573	23D	629	275
350	15E	406	196	462	1CE	518	206	574	23E	630	276
351	15F	407	197	463	1CF	519	207	575	23F	631	277
352	160	408	198	464	1D0	520	208	576	240	632	278
353	161	409	199	465	1D1	521	209	577	241	633	279
354	162	410	19A	466	1D2	522	20A	578	242	634	27A
355	163	411	19B	467	1D3	523	20B	579	243	635	27B
356	164	412	19C	468	1D4	524	20C	580	244	636	27C
357	165	413	19D	469	1D5	525	20D	581	245	637	27D
358	166	414	19E	470	1D6	526	20E	582	246	638	27E
359	167	415	19F	471	1D7	527	20F	583	247	639	27F
360	168	416	1A0	472	1D8	528	210	584	248	640	280
361	169	417	1A1	473	1D9	529	211	585	249	641	281
362	16A	418	1A2	474	1DA	530	212	586	24A	642	282
363	16B	419	1A3	475	1DB	531	213	587	24B	643	283
364	16C	420	1A4	476	1DC	532	214	588	24C	644	284
365	16D	421	1A5	477	1DD	533	215	589	24D	645	285
366	16E	422	1A6	478	1DE	534	216	590	24E	646	286
367	16F	423	1A7	479	1DF	535	217	591	24F	647	287
368	170	424	1A8	480	1E0	536	218	592	250	648	288
369	171	425	1A9	481	1E1	537	219	593	251	649	289
370	172	426	1AA	482	1E2	538	21A	594	252	650	28A
371	173	427	1AB	483	1E3	539	21B	595	253	651	28B
372	174	428	1AC	484	1E4	540	21C	596	254	652	28C
373	175	429	1AD	485	1E5	541	21D	597	255	653	28D
374	176	430	1AE	486	1E6	542	21E	598	256	654	28E
375	177	431	1AF	487	1E7	543	21F	599	257	655	28F
376	178	432	1B0	488	1E8	544	220	600	258	656	290
377	179	433	1B1	489	1E9	545	221	601	259	657	291
378	17A	434	1B2	490	1EA	546	222	602	25A	658	292
379	17B	435	1B3	491	1EB	547	223	603	25B	659	293
380	17C	436	1B4	492	1EC	548	224	604	25C	660	294
381	17D	437	1B5	493	1ED	549	225	605	25D	661	295
382	17E	438	1B6	494	1EE	550	226	606	25E	662	296
383	17F	439	1B7	495	1EF	551	227	607	25F	663	297
384	180	440	1B8	496	1F0	552	228	608	260	664	298
385	181	441	1B9	497	1F1	553	229	609	261	665	299
386	182	442	1BA	498	1F2	554	22A	610	262	666	29A
387	183	443	1BB	499	1F3	555	22B	611	263	667	29B
388	184	444	1BC	500	1F4	556	22C	612	264	668	29C
389	185	445	1BD	501	1F5	557	22D	613	265	669	29D
390	186	446	1BE	502	1F6	558	22E	614	266	670	29E
391	187	447	1BF	503	1F7	559	22F	615	267	671	29F
392	188	448	1C0	504	1F8	560	230	616	268	672	2A0

Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex
673	2A1	729	2D9	785	311	841	349	897	381	953	3B9
674	2A2	730	2DA	786	312	842	34A	898	382	954	3BA
675	2A3	731	2DB	787	313	843	34B	899	383	955	3BB
676	2A4	732	2DC	788	314	844	34C	900	384	956	3BC
677	2A5	733	2DD	789	315	845	34D	901	385	957	3BD
678	2A6	734	2DE	790	316	846	34E	902	386	958	3BE
679	2A7	735	2DF	791	317	847	34F	903	387	959	3BF
680	2A8	736	2E0	792	318	848	350	904	388	960	3C0
681	2A9	737	2E1	793	319	849	351	905	389	961	3C1
682	2AA	738	2E2	794	31A	850	352	906	38A	962	3C2
683	2AB	739	2E3	795	31B	851	353	907	38B	963	3C3
684	2AC	740	2E4	796	31C	852	354	908	38C	964	3C4
685	2AD	741	2E5	797	31D	853	355	909	38D	965	3C5
686	2AE	742	2E6	798	31E	854	356	910	38E	966	3C6
687	2AF	743	2E7	799	31F	855	357	911	38F	967	3C7
688	2B0	744	2E8	800	320	856	358	912	390	968	3C8
689	2B1	745	2E9	801	321	857	359	913	391	969	3C9
690	2B2	746	2EA	802	322	858	35A	914	392	970	3CA
691	2B3	747	2EB	803	323	859	35B	915	393	971	3CB
692	2B4	748	2EC	804	324	860	35C	916	394	972	3CC
693	2B5	749	2ED	805	325	861	35D	917	395	973	3CD
694	2B6	750	2EE	806	326	862	35E	918	396	974	3CE
695	2B7	751	2EF	807	327	863	35F	919	397	975	3CF
696	2B8	752	2F0	808	328	864	360	920	398	976	3D0
697	2B9	753	2F1	809	329	865	361	921	399	977	3D1
698	2BA	754	2F2	810	32A	866	362	922	39A	978	3D2
699	2BB	755	2F3	811	32B	867	363	923	39B	979	3D3
700	2BC	756	2F4	812	32C	868	364	924	39C	980	3D4
701	2BD	757	2F5	813	32D	869	365	925	39D	981	3D5
702	2BE	758	2F6	814	32E	870	366	926	39E	982	3D6
703	2BF	759	2F7	815	32F	871	367	927	39F	983	3D7
704	2C0	760	2F8	816	330	872	368	928	3A0	984	3D8
705	2C1	761	2F9	817	331	873	369	929	3A1	985	3D9
706	2C2	762	2FA	818	332	874	36A	930	3A2	986	3DA
707	2C3	763	2FB	819	333	875	36B	931	3A3	987	3DB
708	2C4	764	2FC	820	334	876	36C	932	3A4	988	3DC
709	2C5	765	2FD	821	335	877	36D	933	3A5	989	3DD
710	2C6	766	2FE	822	336	878	36E	934	3A6	990	3DE
711	2C7	767	2FF	823	337	879	36F	935	3A7	991	3DF
712	2C8	768	300	824	338	880	370	936	3A8	992	3E0
713	2C9	769	301	825	339	881	371	937	3A9	993	3E1
714	2CA	770	302	826	33A	882	372	938	3AA	994	3E2
715	2CB	771	303	827	33B	883	373	939	3AB	995	3E3
716	2CC	772	304	828	33C	884	374	940	3AC	996	3E4
717	2CD	773	305	829	33D	885	375	941	3AD	997	3E5
718	2CE	774	306	830	33E	886	376	942	3AE	998	3E6
719	2CF	775	307	831	33F	887	377	943	3AF	999	3E7
720	2D0	776	308	832	340	888	378	944	3B0	1000	3E8
721	2D1	777	309	833	341	889	379	945	3B1		
722	2D2	778	30A	834	342	890	37A	946	3B2		
723	2D3	779	30B	835	343	891	37B	947	3B3		
724	2D4	780	30C	836	344	892	37C	948	3B4		
725	2D5	781	30D	837	345	893	37D	949	3B5		
726	2D6	782	30E	838	346	894	37E	950	3B6		
727	2D7	783	30F	839	347	895	37F	951	3B7		
728	2D8	784	310	840	348	896	380	952	3B8		